Defense Information Systems Agency
Department of Defense

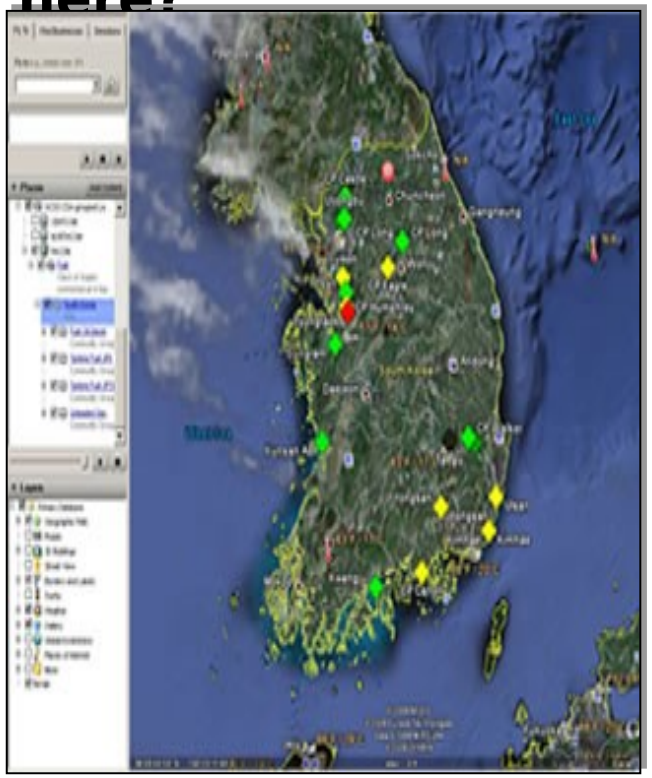
GCSS-J Best Agile Practices

GCSS-J Program Overview

Joint Logistics Environment: Visibility of logistic processes, resources, and requirements

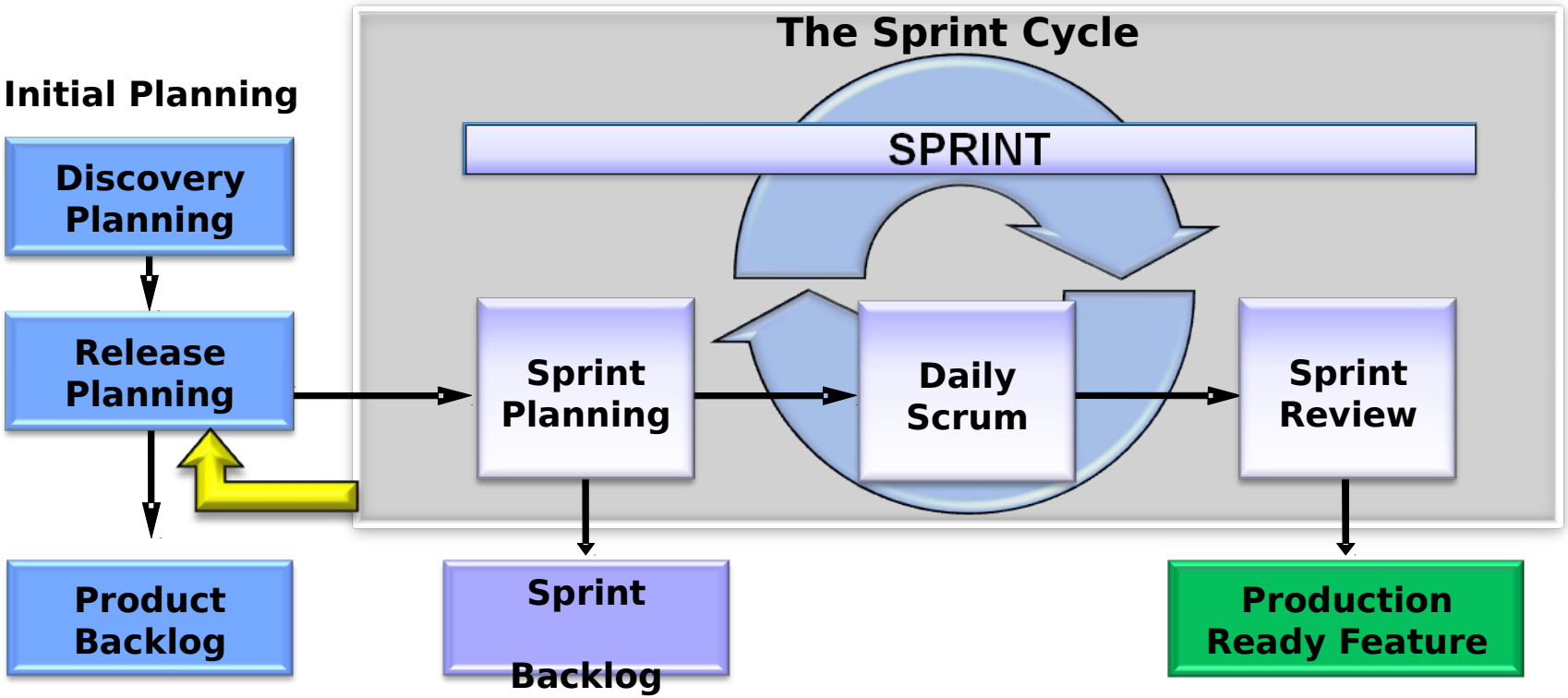
❖ **Where is it?** ❖ **How will it get here?** ❖ **When will it get here?**

- **Web-based system (NIPR / SIPR) managed by DISA**
- **Retrieves authoritative data on facilities, units, ships, aircraft, etc.**
- **Provides decision support tools to analyze, manipulate and display the data**
- **Users collaborate to integrate combat support data**
- **Users represent Maintenance, Supply & Services, Health Service & Support, Movement Services, Civil Military Engineering & Personnel Mngmt**
- **Began as Rapid Improvement Team (RIT) -Dec 2001**



LTG Gainey, JS/J4 Ops Sponsor: "I want capability delivered in dog-years"

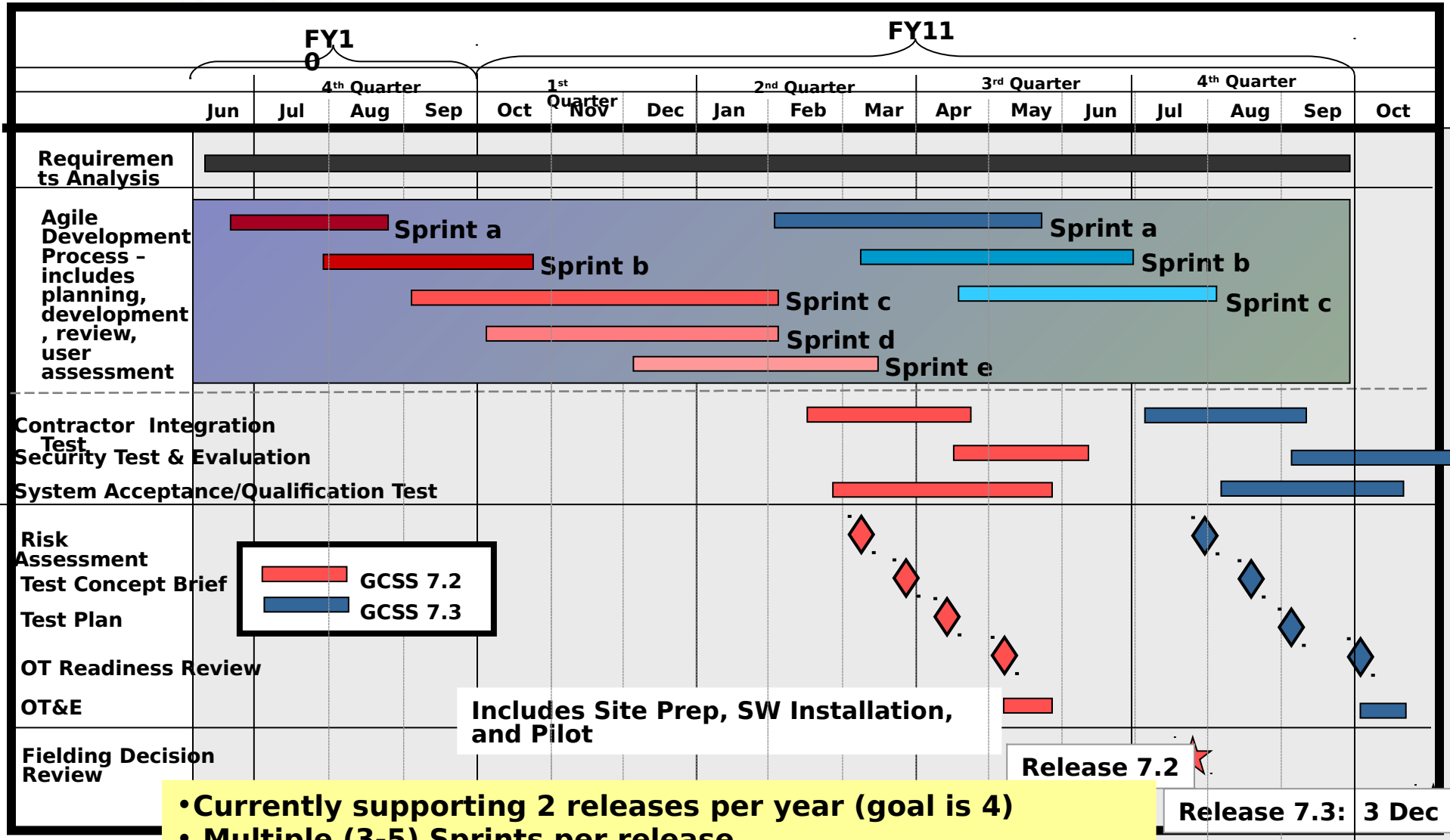
GCSS-J Scrum



- Currently supporting 2 releases per year (goal is 4)
- Multiple (3-5) Sprints per release
- Development Sprints are one month in duration
- Sprints are NOT fielded but available for users on the

Scrum is an agile software development framework

GCSS-J Schedule



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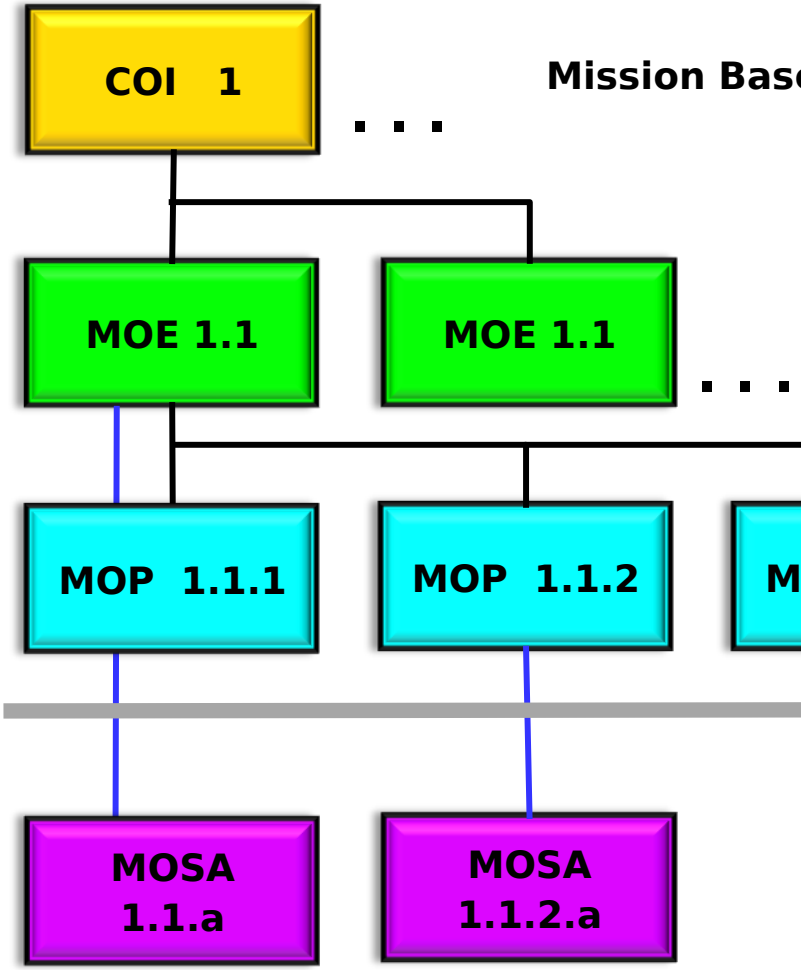
Evaluation Structure



Critical Operational Issues

Mission Based: Traced to Joint Capability Areas (JCAs), levels 1-3

Measures of Effectiveness / Measures of Suitability

Mission Based: JCAs Level 4-7, or OV-5 system's activity model

Measures of Performance

Task Based: Traced to Universal Joint Task List (UJTLs), or . . User input – tasks they perform

Measures of System Attributes

Technical Measures:

- Key Performance Parameters (KPPs)
- Critical Technical Parameters (CTPs)
- Key System Attributes (KSAs)

Majority of Evaluation Structure can be "Solution Agnostic"

Evaluation Structure (cont.)

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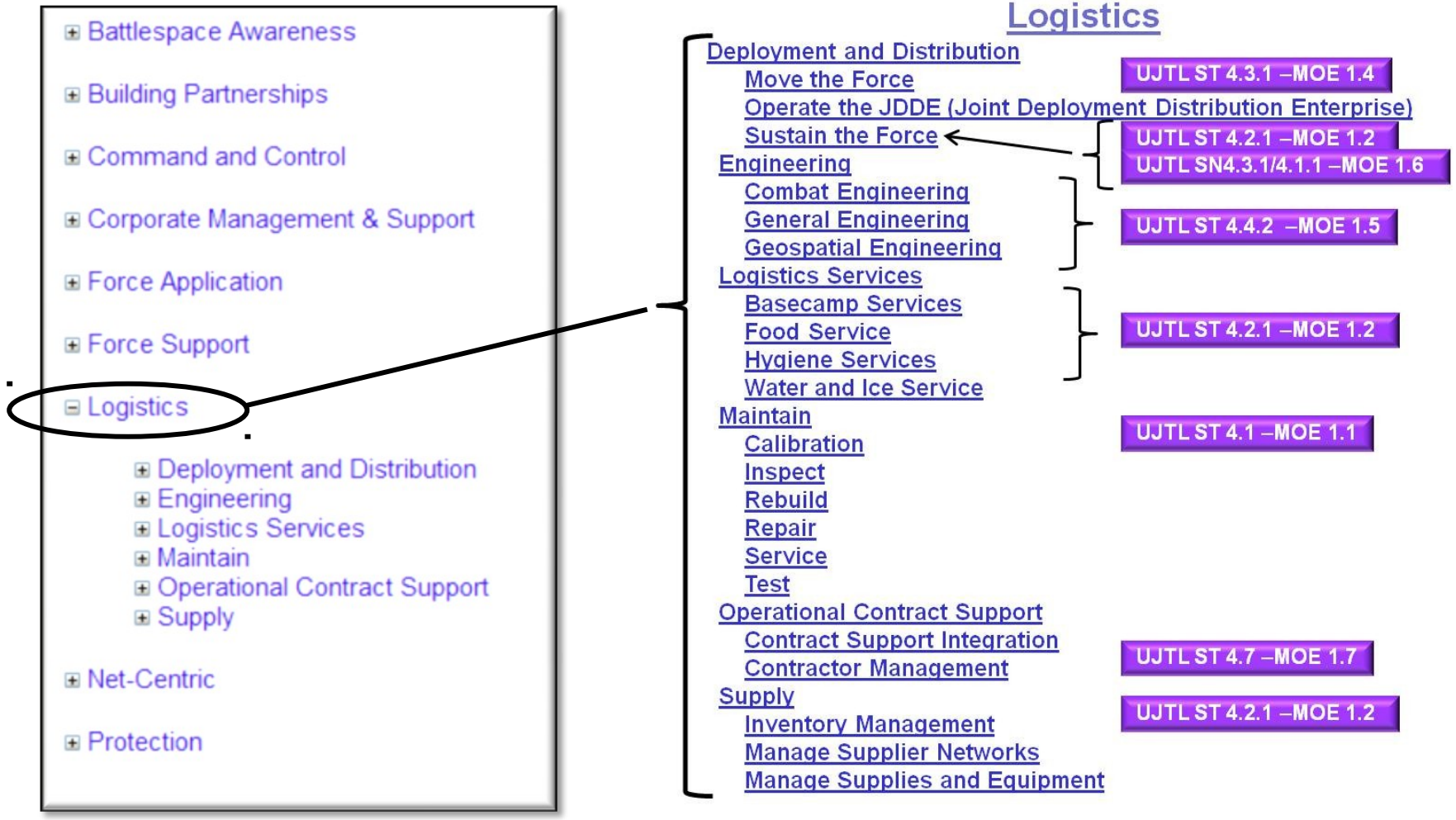
Joint Capability Areas (JCAs)/Universal Joint Task List (UJTL)



MOE = Measure of Effectiveness

Interoperability
Integrated within Evaluation Structure

Task MOPs Mapped to External Interfaces

Task MOPs	ABFC	AV	CFDB	DMDC	FAD	FES	GDSS
1.1.1		•	•	•			
1.1.2		•					
1.2.1		•				•	
1.2.2		•					
1.2.3			•				
1.2.4			•	•			
1.2.5		•				•	
1.3.1			•	•			
1.4.1							•
1.4.2			•	•			•
1.4.3			•	•			
1.4.4			•	•		•	•
1.5.1	•		•	•	•		•

- Each Interface is mapped to the mission tasks (MOPs) that require effective end-to-end data exchange to be successful
- If a data exchange is NOT
  - Timely
  - Accurate
  - Complete
  - Useable

= Mission Tasks may FAIL during testing or post-fielding

- Effective in determining which of the interfaces are truly 'critical' for mission accomplishment

So if GDSS doesn't meet Interoperability criteria, then four mission tasks (MOPs) could be affected

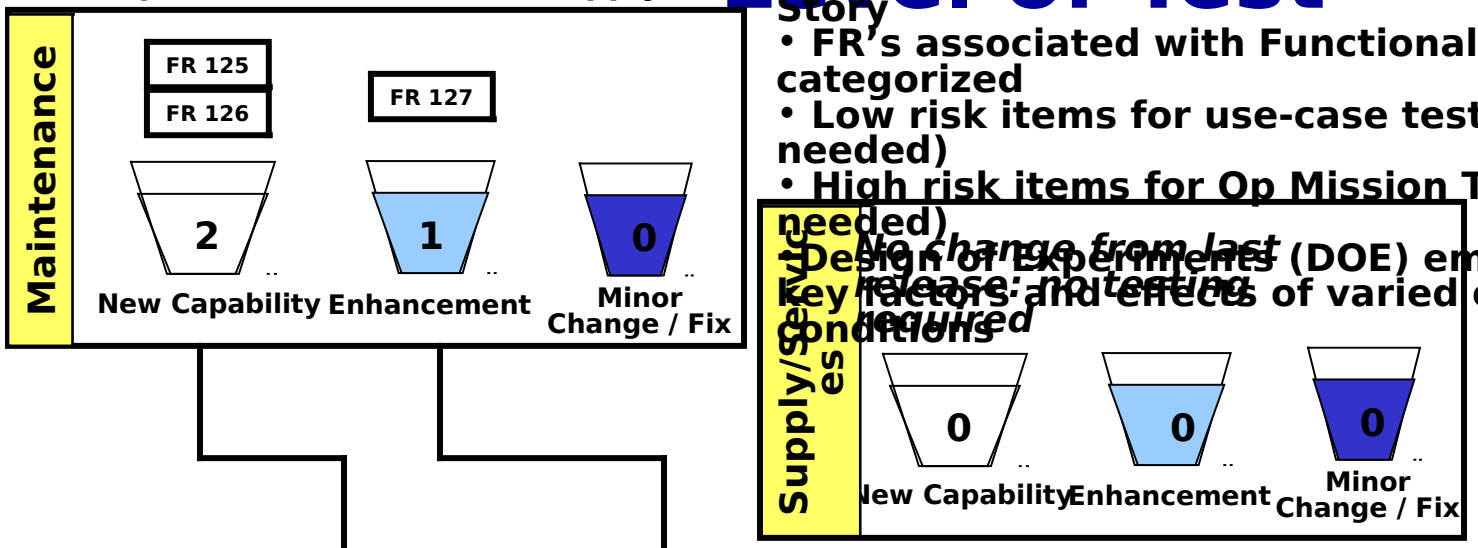
- Information exchanges are correlated to the tasks they support.

- A single interface may provide different information exchanges for different tasks.

- Some tasks are mission critical, some are not (determined by users).

Assessing Risk to Determine Level of Test

Example: Maintenance and Supply Services



- Functional Reqmts (FR) developed for each User Story
- FR's associated with Functional Areas, and categorized
- Low risk items for use-case testing (users not needed)
- High risk items for Op Mission Thread testing (user needed)
- Design of Experiments (DOE) employed to determine key factors and effects of varied environmental conditions

Risk: Moderate

Requires OMT testing

Functional Area	Query Tool	Joint Decision Support Tools			Likelihood of Failure	Impact on Mission
		Display/Map	Collaborate	Predict		
1. Maintenance	2	1			Risk Areas: Low / Mod / High — Development, Implementation, Technology, Complexity	Moderate
2. Supply/Services	*No Change*				Risk Areas: Low / Mod / High — Development, Implementation, Technology, Complexity	Minor

New Enhanced Minor

Risk: Minor Use-case test only

OMT Tests Focused on Higher Risk Areas

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Best Practices

- **Early Involvement**
  - **Users and Testers**
    - **Collaborate on issues, metrics, data elements, conditions**
  - **Develop mission-based evaluation structure**
    - **Readily accommodates emerging user stories and functional reqmts**
- **Risk-based**
  - **Level of Test determined by risk associated with how s/w change impacts the affected tasks/activities**
  - **“Right sizes” test scope = less burden on operational user test**
- **Mission-focused**
  - **Founded in Joint doctrine (JCAs, JPs, UJTLs)**
  - **Links information exchanges to tasks/missions**
  - **Answer the “so what” to decision makers**

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Best Practices

- **Continuous Monitoring**
  - **Continuous data collection on operational system**
    - **Reliability , Availability, Maintainability**
- **Information Assurance**
  - **Integrated team (DIA & JITC) scans continuously throughout development**
  - **Annual assessment of hosting facility**
- **Remote Data Collection**
  - **Use of Defense Connect Online to observe and record user actions**

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Lessons Learned

- **Requirements & the JCIDS Process**
  - **requirements evolve based on warfighter needs**
  - **agility to modify the evaluation plan (COI, MOE/S, MOP) for every GCSS-J increment/release**
- **TES / TEMP**
  - **Not a good fit for Agile programs**
    - **cannot write detailed descriptions of test events, objectives, scope, as we currently do**
    - **shift emphasis to test plan (release) or test cases (sprint)**
  - **Does not include key stakeholders endorsements (JS/J6 and DAA)**
- **Embedded Instrumentation**
  - **automation essential to Agile methods**
  - **requires built-in instrumentation to support lifecycle testing**
- **Test Integration at Sprint Level**
  - **all test disciplines (dt, ot, iop, sec)**
- **Test windows too small for a statistically relevant RAM evaluation**
- **Information Assurance (IA) evaluations in hosting facilities**

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